

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

JIANXING LI et al.

Serial No: 10/783,418

Filed: August 26, 2004

For: SPUTTERING TARGET
COMPOSITIONS, AND METHODS OF
INHIBITING COPPER DIFFUSION
INTO A SUBSTRATE

Certificate of Transmission

I hereby certify that this correspondence is being facsimile
transmitted to the Patent and Trademark Office Fax No. (571)
273-6500 on March 28, 2006.

William L. Androlia

Name

Signature

3/28/2006

Date

REQUEST FOR REFUNDMail Stop 16
Director of the U.S. Patent and Trademark Office
PO Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Upon review of the Monthly Statement of Deposit Account of 10-31-05 (copy enclosed) an error was found. In particular, a fee of \$130.00 for application serial No. 10/783,418 for Statutory Disclaimer (fee code 1814) was charged to Koda & Androlia Deposit Account No. 11-1445 in error.

Applicant respectfully submits that the above-identified patent application serial No. 10/783,418 does not belong to Applicant. Moreover, as can be seen from the attached U.S. Patent Application Publication No. 2004/0166693, application serial No. 10/783,418 appears to belong to Wells St. John P.S. of Spokane, WA. Accordingly, it is believed that this fee of ~~\$180.00~~ *\$130.00 B.M.* should be charged to Wells St. John P.S.

It is therefore respectfully requested that the fee of ~~\$180.00~~ be credited to the account of the undersigned, namely Koda & Androlia Deposit Account No. 11-1445.

Respectfully submitted,

KODA & ANDROLIA

By: William L. Androlia
Reg. No. 27,1772029 Century Park East
Suite 1140
Los Angeles, CA 90067-2983
Tel: (310) 277-1391
Fax: (310) 277-4118



UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

MONTHLY STATEMENT
OF DEPOSIT ACCOUNT

To replenish your deposit account, detach and
return top portion with your check. Make check
payable to Director of Patents & Trademarks.

KODA & ANDROLIA
2029 CENTURY PARK EAST
SUITE 1140
LOS ANGELES CA 90067-2983

RECEIVED FINA

KODA & ANDROLIA

Account No.	111445
Date	10-31-05
Page	1

PLEASE SEND REMITTANCES TO:
U. S. Patent and Trademark Office
P.O. Box 70541
Chicago, IL 60673

DATE POSTED MO. DAY YR.	CONTROL NO.	DESCRIPTION (Serial, Patent, TM, Order)	DOCKET NO.	FEE CODE	CHARGES/ CREDITS	BALANCE
10 3 05	1	10748164	NTD? - 079102	1814	130.00	19898.90
10 3 05	14	78311710	236L 705	6006	100.00	19798.90
10 3 05	15	78976442		6001	375.00	19423.90
10 3 05	16	78311710	236L 705	7003	-100.00	19523.90
10 3 05	17	78976442		6003	100.00	19423.90
10 3 05	407	76443968	878L 653	7004	150.00	19273.90
10 5 05	19	29195437		2401	250.00	19023.90
10 5 05	139	29195437		2253	450.00	18573.90
10 6 05	97	2284414	10L 796	7205	100.00	18473.90
10 6 05	98	2284414	10L 796	7208	200.00	18273.90
10 7 05	1	10802628	172A 3550	1251	120.00	18153.90
10 12 05	1	11002808	211A 3668	1251	120.00	18033.90
10 13 05	1	09605957	279A 3412	1253	900.00	17133.90
10 13 05	2	09605957	279A 3412	1801	790.00	16343.90
10 13 05	31	09863616	125A 3124	1801	790.00	15553.90
10 13 05	78	10473666	211A 3479 PCT	2253	510.00	15043.90
10 17 05	1	10783418	30-5082-DIVI	1814	130.00	14913.90
10 19 05	1	10813342	172A 3559	1251	120.00	14793.90
10 19 05	375	78735490	282L 797	7001	325.00	14468.90
10 21 05	3	10793418	127A 3493	1814	130.00	14338.90
10 25 05	107	29211757		8021	40.00	14298.90
10 25 05	108	29211765		8021	40.00	14258.90
10 25 05	109	29211766		8021	40.00	14218.90
10 25 05	110	29211767		8021	40.00	14178.90
10 25 05	111	29211759		8021	40.00	14138.90
10 25 05	112	29211760		8021	40.00	14098.90
10 25 05	113	29211761		8021	40.00	14058.90
10 26 05	93	09863616	125A 3124	1253	900.00	13158.90
10 27 05	1366	76421393	282L 762	7004	150.00	13008.90

AN AMOUNT SUFFICIENT TO
COVER ALL SERVICES REQUESTED

OPENING BALANCE

TOTAL CHARGES

TOTAL CREDITS

CLOSING BALANCE

BEST AVAILABLE COPY



US 20040166693A1

(19) United States

(12) Patent Application Publication (10) Pub. No.: US 2004/0166693 A1

Li et al.

(43) Pub. Date: Aug. 26, 2004

(54) SPUTTERING TARGET COMPOSITIONS,
AND METHODS OF INHIBITING COPPER
DIFFUSION INTO A SUBSTRATE

Publication Classification

(51) Int. Cl.⁷ C23C 14/32; H01L 21/4703;
B32B 9/04

(52) U.S. Cl. 438/785; 204/192.1; 204/298.13;
204/192.17; 428/704

(76) Inventors: Jianxing Li, Spokane, WA (US);
Stephen Turner, Moon Township, PA
(US); Lijun Yao, Ningbo (JP)

Correspondence Address:
WELLS ST. JOHN P.S.
601 W. FIRST AVENUE, SUITE 1300
SPOKANE, WA 99201 (US)

(57) ABSTRACT

The invention described herein relates to new titanium-comprising materials which can be utilized for forming titanium alloy sputtering targets. The titanium alloy sputtering targets can be reactively sputtered in a nitrogen-comprising sputtering atmosphere to form an alloy TiN film, or alternatively in a nitrogen-comprising and oxygen-comprising sputtering atmosphere to form an alloy TiON thin film. The thin films formed in accordance with the present invention can have a non-columnar grain structure, low electrical resistivity, high chemical stability, and barrier layer properties comparable to those of TiN for thin film Cu barrier applications. Further, the titanium alloy sputtering target materials produced in accordance with the present invention are more cost-effective for semiconductor applications than are high-purity titanium materials and have superior mechanical strength suitable for high-power sputtering applications.

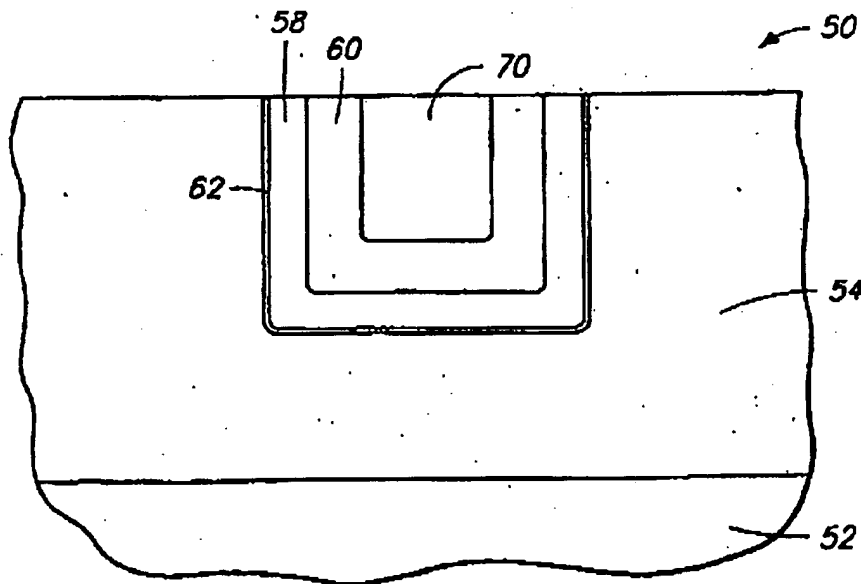
(21) Appl. No.: 10/783,418

(22) Filed: Feb. 19, 2004

Related U.S. Application Data

(62) Division of application No. 10/297,001, filed on Nov. 26, 2002, filed as 371 of international application No. PCT/US01/17996, filed on May 31, 2001.

(60) Provisional application No. 60/225,518, filed on Aug. 15, 2000.



BEST AVAILABLE COPY

United States Patent and Trademark Office
- Sales Receipt -

10/17/2005 EPAYTON 00000001 111445 10783418

01 FC:1814 130.00 DA

Adjustment date: 04/18/2006 SDIRETA1
10/17/2005 EPAYTON 00000001 111445 10783418
01 FC:1814 130.00 CR